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EXAMINER	
RODRIGUEZ, GLENDA P	
ART UNIT	**PAPER NUMBER**
2651	

DATE MAILED: 01/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/619,057	HARRIS, EDWARD B.	
	Examiner	Art Unit	
	Glenda P. Rodriguez	2651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 November 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18 and 25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18 and 25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 November 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 6-12, 14-18 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thornley in (US Patent No. 3, 665, 429) view of Ohgaki et al. (US Patent No. 6, 038, 095).

Regarding Claim 1, Ohgaki et al. teaches a hard disk drive comprising:

> A magnetic storage disk comprising magnetic regions, wherein data bits are represented by the magnetization of the magnetic regions (Col. 3, L. 55-57);
>
> A plurality of read heads in proximate relation to the storage disk for determining the magnetization of the magnetic regions as the storage disk moves relative to the plurality of read heads produces a signal representative of the magnetization, and wherein the plurality of heads are positioned to read the same magnetic regions (Elements 200, 201, 202, 203 and 204 and Col. 3, L. 54 to Col. 4, L. 19);

Even though Thornley teaches a Summer Element that adds the magnetization values, Thornley does not explicitly teach wherein averaging the signals produced by each one of the read heads. However, this feature is well known in the art as disclosed by Ohgaki et al. in Col. 8, L. 51-67. It would have been obvious to a person of ordinary skill in the art,

at the time the invention was made, to modify Thornley's invention with the teaching of Ohgaki et al. in order to produce tracking control as explained by Ohgaki et al. in the Summary of the Invention in Col. 3, L. 51-65.

Method claim (8) is drawn to the method of using the corresponding apparatus claimed in claim (1). Therefore method claim (8) corresponds to apparatus claim (1) and are rejected for the same reasons of obviousness as used above.

Claim (14) has limitations similar to those treated in the above rejections, and is met by the references as discussed above. Claim (14) however also recites the following limitation: "for combining the noise components according to their root near mean square values...See Col. 8, L. 51-67 of Ohgaki et al."

Regarding Claim 2, the combination of Thornley and Ohgaki et al. teach all the limitations of Claim 1. The combination further teach wherein the magnetic regions comprise magnetic domains (See Summary of the Invention of Thornley), and wherein a data bit is stored in each magnetic domain by magnetization of the magnetic domain during a write operation (This is obvious to a person of ordinary skill in the art because magnetic spots recorded in the medium are binary data bits that vary according to its magnetization direction which corresponds to a bit value.).

Regarding Claim 3, the combination of Thornley and Ohgaki et al. teach all the limitations of Claim 2. The combination further teach wherein each one of the plurality of heads produces the signal representative of a read data bit in response to the magnetization of the magnetic domain (See Col. 3, L. 54 to Col. 4, L. 19).

Regarding Claim 6, the combination of Thornley and Ohgaki et al. teach all the limitations of Claim 1. The combination further teach wherein delay elements for delaying one or more of the signals representative of the magnetization to produce one or more time-aligned signal (See Description of Fig. 4 of Thornley).

Regarding Claim 11, the combination of Thornley and Ohgaki et al. teach all the limitations of Claim 8. The combination further teach wherein the plurality of signals are sequentially generated (See Col. 1, L. 24-42 of Thornley).

Regarding Claim 15, the combination of Thornley and Ohgaki et al. teaches all the limitations of Claim 14. The combination further teach wherein the plurality of heads are positioned to successively read the same storage regions as the data storage medium moves relative to the plurality of heads (See Fig. 2a of Thornley).

Regarding Claims 10, 12 and 16, the combination of Thornley and Ohgaki et al. teach all the limitations of Claims 9, 11 and 14. The combination further teach wherein delay elements for delaying one or more of the plurality of signals (See Description of Fig. 4 of Thornley.

Regarding Claims 7, 9 and 17, the combination of Thornley and Ohgaki et al. teach all the limitations of Claims 6, 8 and 16. The combination further teach the time-aligned signals are combined to form a composite signal for processing by the detector, and wherein the composite signal has a greater signal-to-noise ratio than the time-aligned signal (See Col. 1, L. 33-54 and Col. 2, L. 24-42).

Regarding Claim 18, the combination of Thornley and Ohgaki et al. teaches all the limitations of Claim 14. The combination further teach wherein the medium is a magnetic tape (Element 12 in Thornley).

Regarding Claim 25, the combination of Thornley and Ohgaki et al. teach all the limitations of Claims 1. The combination further teaches wherein the read heads which senses the magnetization data bits in Fig. 4.

3. Claims 4, 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thronley and Ohgaki et al. as applied to claim 1 above, and further in view of Yong (US Patent No. 6, 628, 465).

Regarding Claim 4, the combination of Thornley and Ohgaki et al. teach all the limitations of Claim 2. However, the combination does not explicitly teach a disk surface. This feature is taught by Yong, wherein it teaches in Fig. 2, wherein heads 202, 204, 206 and 208. It would have been obvious to a person of obvious skill in the art, at the time the invention was made, to modify the combination's invention with the teaching of Yong in order to read a plurality tracks of the disk surface.

Regarding Claims 5 and 13, the combination of Thornley and Ohgaki et al. teach all the limitations of Claims 2 and 8. However, the combination does not explicitly teach the plurality of heads are positioned to successively read the same data bits as the storage disk moves relative to the plurality of read heads. Yong teaches this limitation in Fig. 2 along with its explanation.

Response to Arguments

5. Applicant's arguments with respect to claims 1-18 and 25 have been considered but are moot in view of the new grounds of rejection.

6. Examiner acknowledges that Claims 19-24 have been cancelled in the Applicant's reply dated 11/22/05.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: 6, 366, 081 to Tan et al., wherein it teaches that Averaging and Root Mean square are equivalent in the explanation of the Element 14 of its invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenda P. Rodriguez whose telephone number is (571) 272-7561. The examiner can normally be reached on Monday thru Thursday: 7:00-5:00; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gpr
01/18/06.

DAVID HUDSPETH
SUPERVISORY PATENT EXAMINER
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